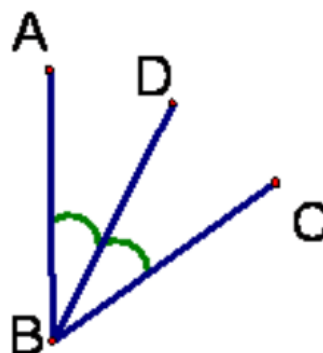


## 2.2 Angle Bisectors

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**Angle Bisector** -A ray that divides an angle into 2 congruent angles.

$\overrightarrow{BD}$  bisects  $\angle ABC$   
Therefore,  $\angle ABD \cong \angle DBC$



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Example:

$\overrightarrow{FH}$  bisects  $\angle EFG$

$$\underline{\angle EFH} \cong \underline{\angle HFG}$$



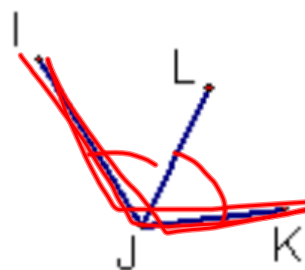
If the  $m \angle EFH = 32^\circ$ , then  $m \angle HFG = 32^\circ$ . Find  $m \angle EFG = \underline{64^\circ}$

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Example:

$\overrightarrow{JL}$  bisects  $\angle JJK$

$$\underline{\angle IJL} \cong \underline{\angle LJK}$$



$m \angle IJK = 124^\circ$  Find  $m \angle IJL = \underline{62^\circ}$

$$2 \overline{) 124}$$

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## Using Algebra

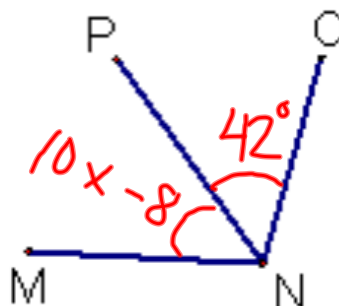
Example:

$\overrightarrow{NP}$  bisects  $\triangle MNO$

$$m\angle MNP = 10x - 8$$

$$m\angle PNO = 42^\circ$$

Find x.



$$\begin{aligned} 10x - 8 &= 42 \\ 10x &= 50 \\ x &= 5 \end{aligned}$$

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Example:

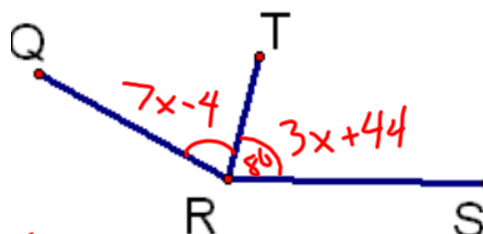
$\overrightarrow{RT}$  bisects  $\triangle QRS$

$$m\angle QRT = 7x - 4$$

$$m\angle TRS = 3x + 44$$

Find x.

$$\text{Find } m\angle QRS = \underline{160^\circ}$$



$$\begin{aligned} 7x - 4 &= 3x + 44 \\ -3x &\quad -3x \\ \hline 4x - 4 &= 44 \end{aligned}$$

$$4x = 48$$

$$x = 12$$

$$3(12) + 44$$

$$\begin{array}{r} 36 \\ +44 \\ \hline 80 \end{array}$$

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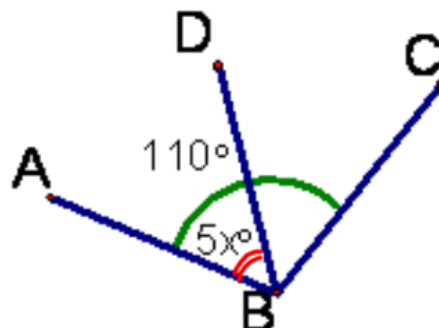
\*\*\*\*\*

The arc on the angle means that the whole angle,

 $\angle ABC$  measures  $110^\circ$ 

\*\*\*\*\*

Example:

 $\overrightarrow{BD}$  bisects $\angle ABC$ Find  $x$ .

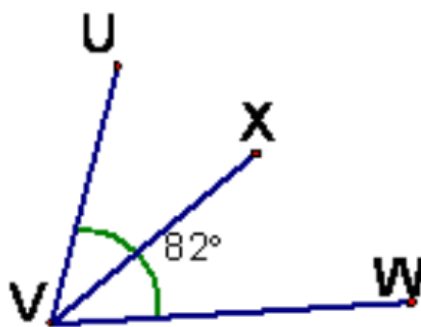
$$5x = \frac{1}{2} 110$$

$$5x = 55$$

$$x = 11$$

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Example:

 $\overrightarrow{VX}$  bisects $\angle UVW$ Find  $m \angle X VW =$  41

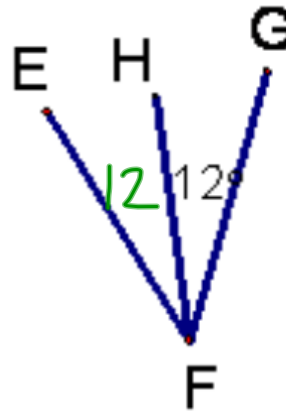
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Example:

$\overrightarrow{FH}$  bisects

$\triangle EFG$

Find  $m \triangle EFG = \underline{24}$



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**HW**

**Pgs 64-66**

**#s 1-22, 28-30, 32**

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